

Role of dexmedetomidine for sedation in a patient with schizophrenia for strabismus surgery

INTRODUCTION

Patients with schizophrenia are generally less suitable candidates for regional anaesthesia. Post-operative delirium is commonly seen in patients with schizophrenia after general anaesthesia. Dexmedetomidine is an alpha-2 adrenoreceptor agonist with sedative, analgesic and anxiolytic properties with minimal respiratory depression.^[1,2] It provides conscious sedation and has been safely used for ophthalmic procedures including strabismus surgery.^[3] The use of dexmedetomidine is associated with lesser incidence of post-operative delirium in comparison to propofol and midazolam.

CASE REPORT

A 20-year-old gentleman, weighing 80 kg, with left eye convergent squint was scheduled for squint surgery. He was diagnosed with schizophrenia with obsessive-compulsive features 3 years ago. He was receiving the following medications- dopamine antagonist (risperidone 2 mg OD), noradrenergic and specific serotonergic antidepressant (mirtazapine 15 mg OD), serotonin norepinephrine reuptake inhibitor (venlafaxine 75 mg BD), anticholinergic agent (trihexyphenidyl 10 mg BD) and benzodiazepine (clobazam 20 mg OD). He had a history of snoring, but there were no other signs and symptoms suggestive of obstructive sleep apnoea. The patient did not have any other systemic illness.

On examination, the patient was conscious, oriented, disinterested in surrounding, with heart rate (HR) of 80/min and non-invasive blood pressure (NIBP) of 126/84 mm Hg. Airway and systemic examination, electrocardiogram (ECG) and blood investigations were within normal limits.

After explaining the choice between general and regional anaesthesia, the patient and his father refused general anaesthesia. Squint surgery was planned under peribulbar block with monitored anaesthesia care (MAC). Written informed consent was obtained. As

advised by the treating psychiatrist, all antipsychiatric medications were continued till the day of surgery.

In the operation theatre, routine monitors were attached to the patient. His baseline HR was 80 beats/min, NIBP was 130/84 mm Hg and SpO₂ was 99%. Intravenous access was obtained. Oxygen was supplemented at 2 L/min fresh gas flow through a nasal prong, which had facility for expired carbon dioxide monitoring. Dexmedetomidine infusion was started with bolus of 1 mcg/kg over 15 min followed by 0.5 µg/kg/h. Peribulbar block (8 ml) (0.5% bupivacaine 4 ml, 2% lignocaine 4 ml with hyaluronidase 15 IU/ml) was administered at Ramsay sedation score (RSS) between 3 and 4. Surgery was started after 5 min of administration of block. Vital parameters remained stable during the intraoperative period with HR of 50–54 beats/min, NIBP of 110–130/70–80 mmHg and respiratory rate of 12–14/min. Duration of surgery was 60 min with minimal blood loss. During surgery, RSS remained between 3 and 4. Dexmedetomidine infusion was stopped 5 min before the end of the procedure, and the patient was shifted to post-anaesthesia care unit for monitoring and sedation assessment. After 1 h of observation, he was transferred to the ward. There was no episode of agitation, delirium or exacerbations of symptoms post-operatively.

DISCUSSION

Patients with schizophrenia are at increased risk for diabetes, cardiopulmonary diseases and obesity. Anaesthesiologist should be aware of interaction between antipsychotic, anaesthetic and sedative drugs due to side effects such as postural hypotension and ECG changes.^[4] Risperidone and venlafaxine have the potential to cause bradycardia.^[5] Propofol and midazolam are commonly used drugs for sedation for MAC.^[6] However, propofol infusion may lead to hypotension and apnoea and may need respiratory support. Mask ventilation in between the ophthalmic surgery may result in interruption of surgery and also increases chance of ocular infection. Although midazolam is short-acting sedative, after prolonged infusion in obese patients,^[7] there are chances of accumulation due to increased volume of distribution and elimination half-life leading to risk of respiratory depression.

Post-operative delirium is one of the most common problems in patients with schizophrenia.^[8] Lowest incidence of delirium

has been described with dexmedetomidine (3%) in comparison with propofol (50%) and midazolam (50%).^[9] Post-operative sedation with dexmedetomidine was also associated with significantly lower rates of post-operative delirium.^[9] To the best of our knowledge, the role of dexmedetomidine infusion for MAC in psychiatric patients has not been studied.

Peribulbar block with dexmedetomidine conscious sedation helps the surgeon in keeping the eye stable in the desired direction to prevent globe perforation and also decreases pain during performance of block. Even after complete akinesia and analgesia with regional block, appropriate sedation with dexmedetomidine may lower the intraocular pressure,^[3] prevents hypertensive response to anxiety and provides patient comfort^[4] along with good cardiopulmonary stability and potentially better operating conditions.

Intraoperative bradycardia is also a major concern with the use of dexmedetomidine, risperidone and venlafaxine. This may get further enhanced during strabismus surgery due to oculocardiac reflex (OCR). Peribulbar block decreases the incidence of OCR during strabismus surgery.^[10] We used dexmedetomidine considering its definite advantage of reducing the incidence of post-operative delirium over other sedative drugs. Although we kept atropine ready to treat intraoperative bradycardia, HR remained stable in the range of 50–54/min during perioperative period.

CONCLUSION

We report the successful use of dexmedetomidine sedation in a patient with schizophrenia for squint surgery, without any untoward haemodynamic effects and exacerbation of psychiatric symptoms in perioperative period.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**Ram Kumar, Renu Sinha, Riddhi Kundu,
Bikash Ranjan**

Department of Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

Address for correspondence:

Dr. Ram Kumar,
Room No.: 5011, 5th Floor, Teaching Block, Department of Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi - 110 017, India.
E-mail: ramkumarkdr1@gmail.com

REFERENCES

1. Chrysostomou C, Schmitt CG. Dexmedetomidine: Sedation, analgesia and beyond. *Anesth Analg* 2011;113:1129-42.
2. Arcangeli A, D'Alò C, Gaspari R. Dexmedetomidine use in general anaesthesia. *Curr Drug Targets* 2009;10:687-95.
3. Jaakola ML, Ali-Melkkilä T, Kanto J, Kallio A, Scheinin H, Scheinin M. Dexmedetomidine reduces intraocular pressure, intubation responses and anaesthetic requirements in patients undergoing ophthalmic surgery. *Br J Anaesth* 1992;68:570-5.
4. Attri JP, Bala N, Chatrath V. Psychiatric patient and anaesthesia. *Indian J Anaesth* 2012;56:8-13.
5. Pachter P, Kecskemeti V. Cardiovascular side effects of new antidepressants and antipsychotics: New drugs, old concerns? *Curr Pharm Des* 2004;10:2463-75.
6. Tobias JD, Leder M. Procedural sedation: A review of sedative agents, monitoring, and management of complications. *Saudi J Anaesth* 2011;5:395-410.
7. Greenblatt DJ, Abernethy DR, Locniskar A, Harmatz JS, Limjuco RA, Shader RI. Effect of age, gender, and obesity on midazolam kinetics. *Anesthesiology* 1984;61:27-35.
8. Copeland LA, Zeber JE, Pugh MJ, Mortensen EM, Restrepo MI, Lawrence VA. Postoperative complications in the seriously mentally ill: A systematic review of the literature. *Ann Surg* 2008;248:31-8.
9. Maldonado JR, Wysong A, van der Starre PJ, Block T, Miller C, Reitz BA. Dexmedetomidine and the reduction of postoperative delirium after cardiac surgery. *Psychosomatics* 2009;50:206-17.
10. Gupta N, Kumar R, Kumar S, Sehgal R, Sharma KR. A prospective randomised double blind study to evaluate the effect of peribulbar block or topical application of local anaesthesia combined with general anaesthesia on intra-operative and postoperative complications during paediatric strabismus surgery. *Anaesthesia* 2007;62:1110-3.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

| Access this article online | |
|--|----------------------------------|
| Quick response code | Website: www.ijaweb.org |
|  | DOI: 10.4103/0019-5049.193688 |

How to cite this article: Kumar R, Sinha R, Kundu R, Ranjan B. Role of dexmedetomidine for sedation in a patient with schizophrenia for strabismus surgery. *Indian J Anaesth* 2016;60:856-7.